

Is NESSI really Necessary?

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Some General NESSI Objectives

- NESSI (New Sampling/Sensor Initiative)
- Simplify tasks and reduce overall costs involved in engineering, installing, and maintaining analytical equipment for the HPI industry.
- Shrink the physical size and energy use through miniaturization.
- Promote industry standards for analytical equipment.
- Create infrastructure to support the use of micro-analytical sensors.
- Design instrumentation capable of being close coupled by field-mounting.
- Work toward an open communication standard for instrumentation from the sensor level to the DCS level.
- Tighten the integration from sample point to analyzer.

Introduction PGC 1000 Design Elements

- Point-of-Use

 - Greatly Reduce Sample Lines & Requires No Shelter
 - NEMA-4 Construction & Four Stream Capability

- Price Point

 - Very Competitive Pricing

- Small Size & Low Weight

 - Roughly 7"X16"X9" & 47 Pounds

- Low Consumables

 - Around 10 ml/min Each Carrier & Sample

- Power Options

 - 12 or 24 VDC, Max 4 amp, nominal 4 watts can be
 - Solar Powered in a General Purpose Area

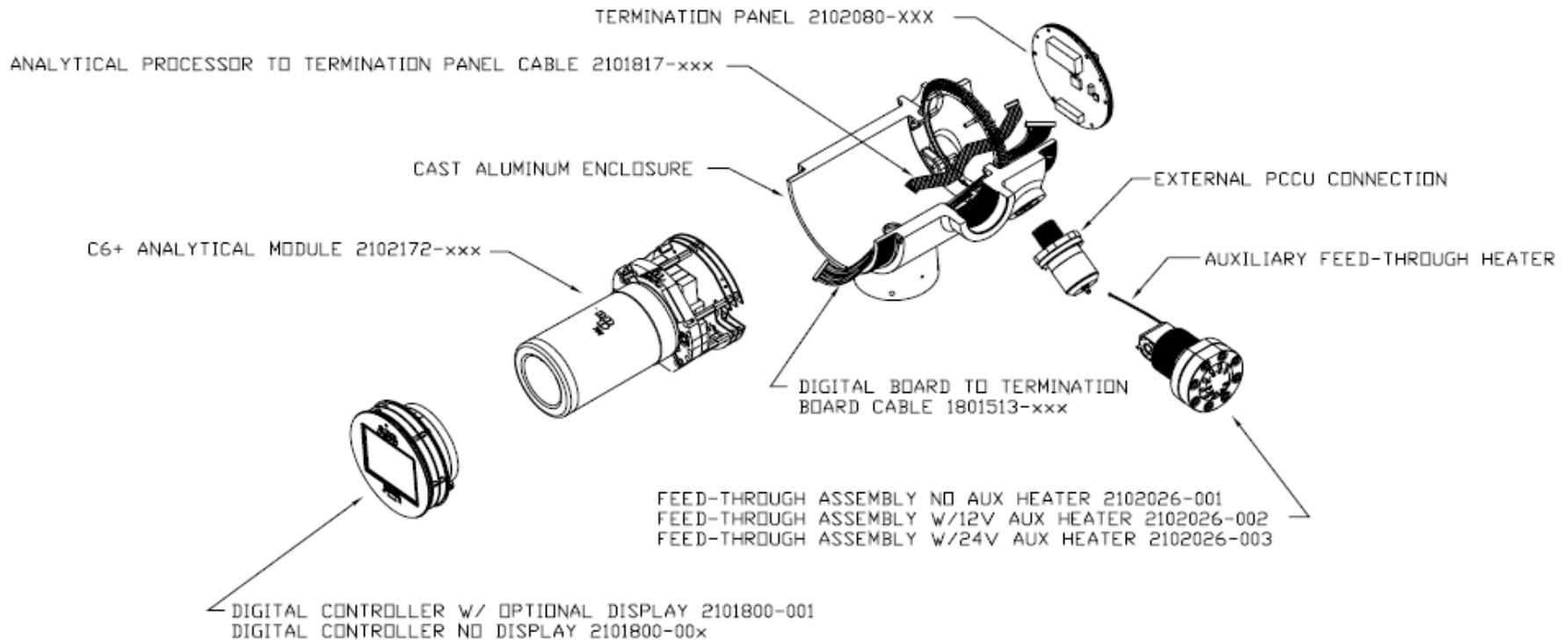
- Selectable Communication Options

 - RS-232, RS-422, RS-495,
 - TCPIP, Modbus, VistaNET compatible



Analyzer – Expanded View

■ Analyzer – Modular Elements and Connections



Analytical Module Assembly

- Major Sub-assembly that removes with one bolt from the Feedthrough
- Very useful for quick repair of existing analyzer applications or for the quick change to a new application on the same instrument platform



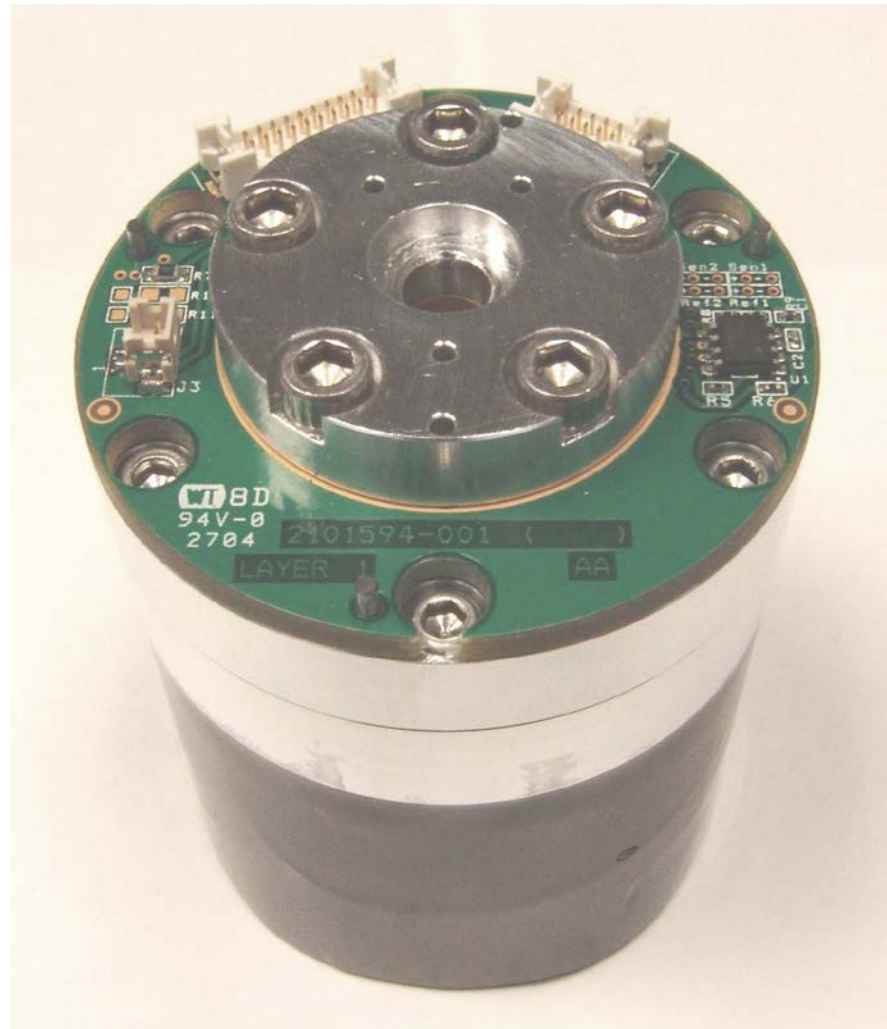
Analytical Module Assembly w/o Dewar Flask

What's inside?

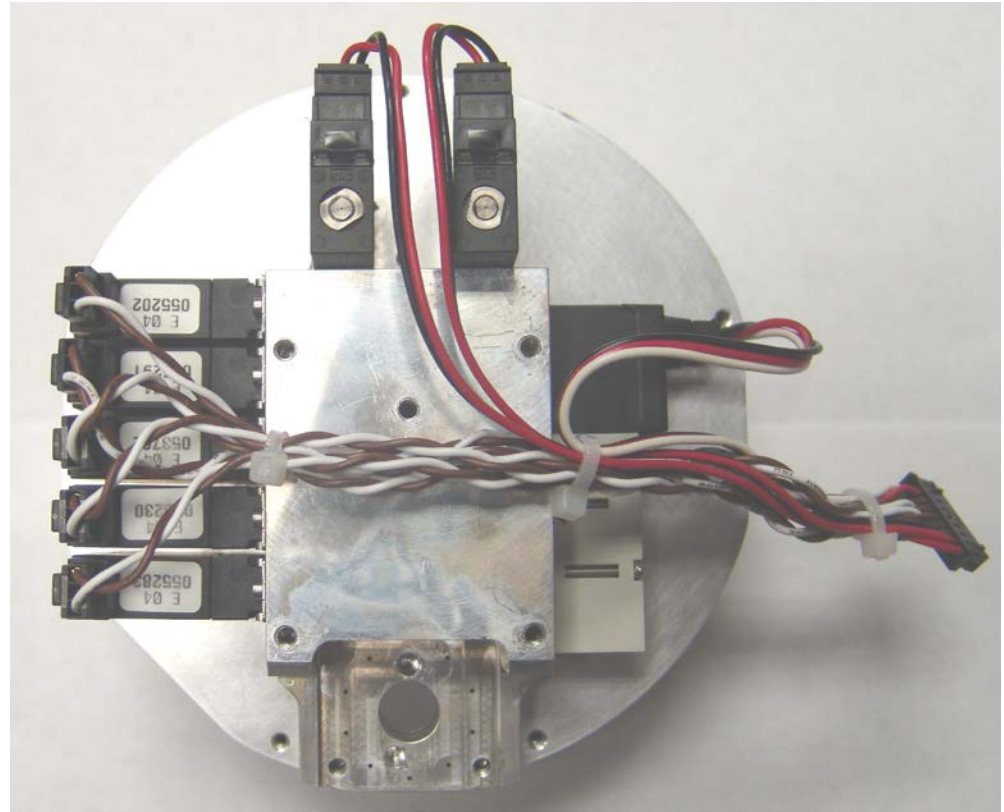


GC Module

- GC Valve Assembly
 - Contains detectors
 - 2 Pressure Regulator Sensors
 - 1 Sample Pressure Sensor
 - EEPROM for Calibration and Configuration Storage
 - Connectors going to analytical processor
 - Connector for Oven Temp Sensor
 - Single bolt connection for all gas pathways

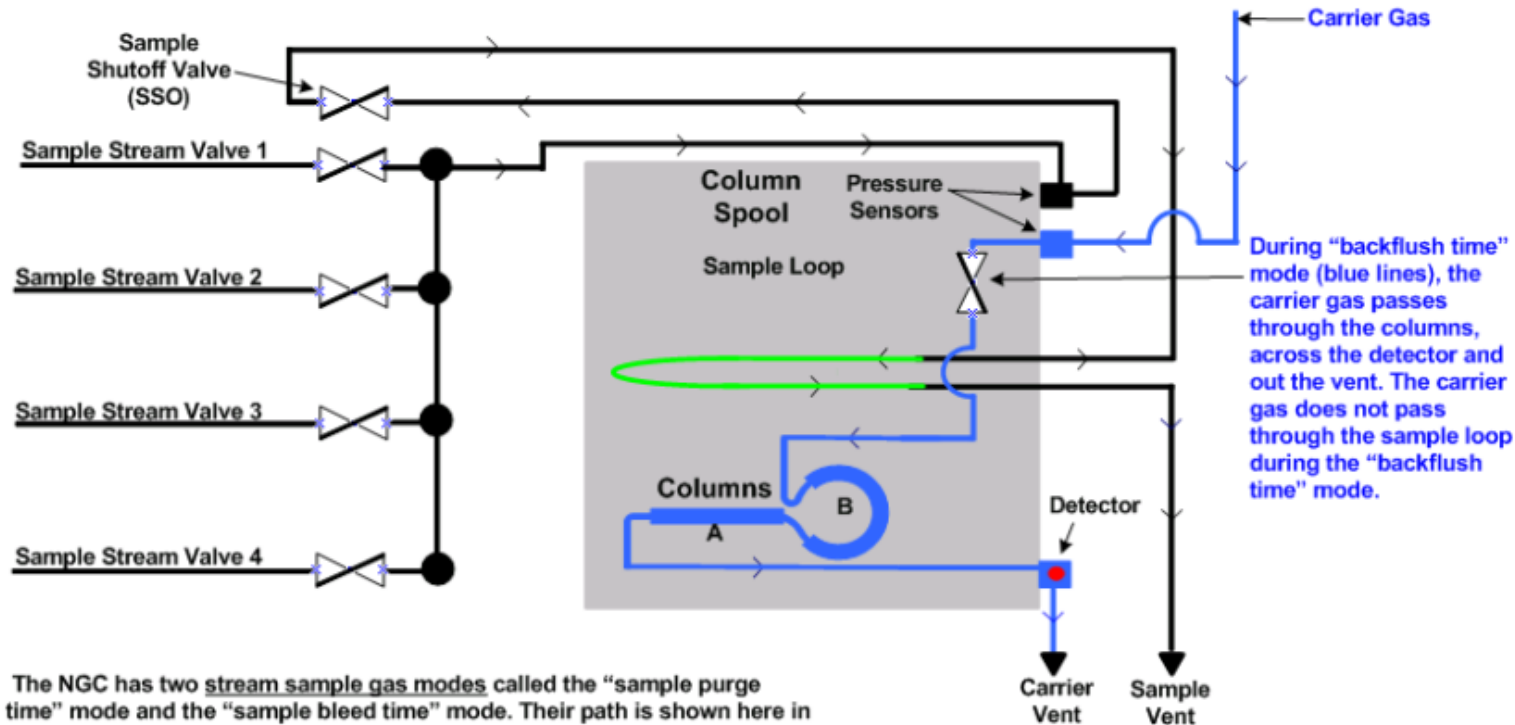


Analyzer Manifold and Valves





Basic Layout of Single Train Sample Valves, Sample Loop and Columns During the Backflush Time Mode



The NGC has two stream sample gas modes called the “sample purge time” mode and the “sample bleed time” mode. Their path is shown here in black. At the start of the cycle, a stream valve will open this is called the “stream purge mode”. During this mode, the stream gas passes through the pressure sensor, the sample shutoff valve (SSO), the sample loop and out the sample vent. After the “sample purge time” mode, the sample valve will close. Next is the “sample bleed time” mode during which the sample pressure in the sample loop will vent down to the atmospheric pressure.

The NGC has two carrier gas modes called the “inject time” mode and the “backflush time” mode. The “inject” mode, shown on the other page, starts after the “sample bleed time” mode ends; otherwise, the NGC is always in the carrier “backflush time” mode depicted here in blue. In other words, the NGC is in the “backflush” mode at the end and the beginning of the cycle interrupted by a 15 second +/- 2 seconds “inject time” mode.

It is very important that only clean stainless steel tubing is used when attaching to the sample streams and carrier inlet. Teflon tubing will not perform well because gasses can slowly pass through the walls of the tubing giving erroneous readings. The stainless steel tubing must be free of all water and contaminants or the sample valves, sample loop and columns may become plugged.

What NESSI issues have been addressed?

- NESSI (New Sampling/Sensor Initiative).
- Simplify tasks and reduce overall costs involved in engineering, installing, and maintaining analytical equipment for the HPI industry.
- Shrink the physical size and energy use through miniaturization.
- Promote industry standards for analytical equipment.
- Create infrastructure to support the use of micro-analytical sensors.
- Design instrumentation capable of being close coupled by field-mounting.
- **FAILED TO Work toward an open communication standard for instrumentation from the sensor level to the DCS level.**
- Tighten the integration from sample point to analyzer.

Questions?

